In the Claims:

Please cancel claims 1-10 and 14. Please amend claims 11, 13, 15, 19-24. Please add new claims 25-30. The claims are as follows:

1. - 10. (Canceled)

11. (Currently Amended) A method of fabricating a filled trench structure, comprising:

(a) forming a planarization stop layer on a top surface of a substrate;

(b) forming a first set of trenches in a first region of said planarization stop layer and said substrate and forming a second set of trenches in a second region of said planarization stop layer and said substrate, trenches in said first set of trenches having a higher aspect ratio than said trenches in said second region;

(c) depositing a layer of a fill material in and over said first and second sets of trenches and on a top surface of said planarization stop layer, said fill material completely filling each trench of said first set of trenches and completely filling each trench of said second sets of trenches, a first thickness of said layer of said fill material directly over each trench of said first set of trenches greater than a second thickness of said layer of said fill material directly over each trench of said second set of trenches, said first and second thicknesses measured perpendicularly from a plane coplanar with said top surface of said planarization stop layer to a top surface of said layer of said fill material;

(d) after (c), non-selectively removing, using a non-planarization ~~wet etching, a dry etching, a reactive ion etching or a plasma etching~~ process, an entire uppermost layer of said fill material from over said first and second ~~sets of trenches~~ regions and said top surface of said

planarization stop layer[[,]] to form a thinned layer of said fill material ~~remaining~~ over said first and second ~~sets of trenches~~ regions and on said top surface of said planarization stop layer, said fill material still completely filling each trench of said first set of trenches and each trench of said second set[[s]] of trenches; and

(e) after ~~step~~ (d), removing[[,]] using a planarization process, all said thinned layer of said fill material from said top surface of said planarization stop layer and over said first and second ~~set of trenches~~ regions, said fill material still completely filling each trench of said first set of trenches and each trench of said second set of trenches, a top surface of said fill material in said first set of trenches and a top surface of said fill material in said second sets of trenches co-planer with said top surface of said planarization stop layer.

12. (Canceled)

13. (Currently Amended) The method of claim 11, wherein in ~~step~~ (e) said planarization process includes chemical-mechanical polishing or fixed abrasive grinding.

14. (Canceled)

15. (Currently Amended) The method of claim [[14]] 11, wherein ~~step~~ (d) removes about 5 to 20% of an as deposited thickness of said fill material.

16. (Original) The method of claim 11, wherein the aspect ratio of trenches in said first set of trenches is greater than about 3:1 and the aspect ratio of trenches in said second region is less than about 3:1.

17. (Original) The method of claim 11, wherein said first region is a memory cell array region and said second region is a support circuit region of an integrated circuit.

18. (Original) The method of claim 11, wherein said fill material is selected from the group consisting of: high-density plasma oxide, low-pressure chemical vapor deposition oxide, tetraethoxysilane oxide, silicon nitride, bis(tertiary-butylamine)silane, a thin layer of conformal insulator and a fill layer of N-doped, P-doped or un-doped polysilicon, tungsten, copper or aluminum.

19. (Currently Amended) The method of claim [[11]] 22, wherein ~~the volume of fill material removed in~~ after ~~step~~ (d) and before (e) ~~is experimentally pre-determined to be a volume that allows removal in step (e) of all of said fill material from said top surface of said substrate in both said first and second regions in a predetermined amount of chemical-mechanical-polish or grind time~~ , a first volume of fill material in said first region not completely contained in said trenches of said first set of trenches is about equal to a second volume of fill material in said second region not completely contained in said trenches of said second set of trenches.

20. (Currently Amended) The method of claim [[11]] 22, wherein ~~step~~ (d) removes about 5 to 20% of the as deposited thickness of said fill material.

21. (Currently Amended) The method of claim [[11]] 22, wherein ~~step~~ (d) reduces the difference between a volume of said fill material over first region and a volume of said fill material over said second region.

22. (Currently Amended) A method of fabricating a filled trench structure, comprising:

(a) forming a planarization stop layer on a top surface of a substrate;

(b) forming a first set of trenches in a first region of said planarization stop layer and said substrate and forming a second set of trenches in a second region of said planarization stop layer and said substrate, trenches in said first set of trenches having a higher aspect ratio than said trenches in said second region;

(c) depositing a layer of a fill material in and over said first and second sets of trenches and on a top surface of said planarization stop layer, said fill material completely filling each trench of said first set of trenches and completely filling each trench of said second sets of trenches;

(d), after (c):

(i) forming a mask layer on said layer of fill material;

(ii) forming a opening in said mask layer in said first region and over trenches of said first set of trenches;

(iii) removing a layer of said layer of said fill material exposed in said opening, said fill material still completely filling each trench of said first set of trenches; and

(iv) removing said masking layer; and

~~(d) after step (c), removing, using a non-planarization process, an uppermost layer of said fill material from over said first and second sets of trenches and said top surface of said planarization stop layer, a thinned layer of said fill material remaining over said first and second sets of trenches and on said top surface of said planarization stop layer, said fill material still completely filling of said first and second sets of trenches; and~~

(e) after ~~step~~ (d), removing, using a planarization process, all of said layer of said fill material from said top surface of said planarization stop layer and over said first and second ~~set of trenches~~ regions, said fill material still completely filling each trench of said first set of trenches and each trench of said second set of trenches, a top surface of said fill material in said first set of trenches and a top surface of said fill material in said second sets of trenches co-planer with said top surface of said planarization stop layer.

23. (Currently Amended) The method of claim 22, wherein ~~in step~~ (d) ~~said non-planarization process~~ includes a wet etching, a dry etching, a reactive ion etching or a plasma etching process.

24. (Currently Amended) The method of claim 22, wherein in ~~step~~ (e) said planarization process includes chemical-mechanical polishing or fixed abrasive grinding.

25. (New) The method of claim 11, wherein in (d) said non-planarization process includes a wet etching, a dry etching, a reactive ion etching or a plasma etching process.

26. (New) The method of claim 11, wherein in (d), after said removing, a third thickness of said thinned layer of said fill material directly over each trench of said first set of trenches is greater

than a fourth thickness of said thinned layer of fill material directly over each trench of said second set of trenches, said third and fourth thicknesses measured perpendicularly from a plane coplanar with said top surface of said planarization stop layer to a top surface of said thinned layer of fill material.

27. (New) The method of claim 22, wherein in (c) after said depositing, a first thickness of said layer of said fill material directly over each trench of said first set of trenches is greater than a second thickness of said layer of said fill material directly over each trench of said second set of trenches, said first and second thicknesses measured perpendicularly from a plane coplanar with said top surface of said planarization stop layer to a top surface of said layer of said fill material.

28. (New) The method of claim 22, wherein the aspect ratio of trenches in said first set of trenches is greater than about 3:1 and the aspect ratio of trenches in said second region is less than about 3:1.

29. (New) The method of claim 22, wherein said first region is a memory cell array region and said second region is a support circuit region of an integrated circuit.

30. (New) The method of claim 22, wherein said fill material is selected from the group consisting of: high-density plasma oxide, low-pressure chemical vapor deposition oxide, tetraethoxysilane oxide, silicon nitride, bis(tertiary-butylamine)silane, a thin layer of conformal insulator and a fill layer of N-doped, P-doped or un-doped polysilicon, tungsten, copper or aluminum.